

1. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-8 + 5x > 6x \text{ or } -3 + 6x < 9x$$

- A.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-12, -6]$  and  $b \in [-6, 0]$
  - B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [0, 3.75]$  and  $b \in [3.75, 15.75]$
  - C.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-9.75, -3.75]$  and  $b \in [-8.25, 2.25]$
  - D.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [0, 3]$  and  $b \in [5.25, 13.5]$
  - E.  $(-\infty, \infty)$
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2. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{7}{5} - \frac{7}{8}x \geq \frac{3}{3}x - \frac{6}{2}$$

- A.  $[a, \infty)$ , where  $a \in [-0.75, 3]$
  - B.  $[a, \infty)$ , where  $a \in [-6.75, 0]$
  - C.  $(-\infty, a]$ , where  $a \in [0.75, 6]$
  - D.  $(-\infty, a]$ , where  $a \in [-3, 1.5]$
  - E. None of the above.
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3. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

No less than 10 units from the number 9.

- A.  $(-\infty, -1) \cup (19, \infty)$
- B.  $(-\infty, -1] \cup [19, \infty)$
- C.  $[-1, 19]$
- D.  $(-1, 19)$

E. None of the above

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4. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-4 - 6x < \frac{-32x + 8}{6} \leq -3 - 7x$$

- A.  $(a, b]$ , where  $a \in [3.75, 9.75]$  and  $b \in [-2.25, 4.5]$   
B.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [6.75, 9.75]$  and  $b \in [-1.5, 6]$   
C.  $[a, b)$ , where  $a \in [5.25, 12.75]$  and  $b \in [0, 6.75]$   
D.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [7.5, 11.25]$  and  $b \in [0.75, 4.5]$   
E. None of the above.
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5. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-4 + 4x > 5x \text{ or } 5 + 6x < 8x$$

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-5.02, -3.97]$  and  $b \in [1.73, 2.55]$   
B.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-3.52, -1.57]$  and  $b \in [3.89, 4.51]$   
C.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-2.85, -1.88]$  and  $b \in [3, 6]$   
D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-4.65, -3.3]$  and  $b \in [0, 3]$   
E.  $(-\infty, \infty)$
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6. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-5x + 4 < -4x + 10$$

- A.  $(a, \infty)$ , where  $a \in [-15, -3]$   
B.  $(-\infty, a)$ , where  $a \in [-7, -4]$

- C.  $(-\infty, a)$ , where  $a \in [6, 8]$
  - D.  $(a, \infty)$ , where  $a \in [2, 11]$
  - E. None of the above.
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7. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$4x - 5 > 10x - 8$$

- A.  $(-\infty, a)$ , where  $a \in [-0.58, -0.47]$
  - B.  $(-\infty, a)$ , where  $a \in [-0.23, 0.73]$
  - C.  $(a, \infty)$ , where  $a \in [0.25, 1.38]$
  - D.  $(a, \infty)$ , where  $a \in [-1.27, -0.08]$
  - E. None of the above.
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8. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-5 + 6x < \frac{77x - 8}{9} \leq 7 + 8x$$

- A.  $[a, b)$ , where  $a \in [-6.75, 0.75]$  and  $b \in [8.25, 18]$
  - B.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-5.25, 0]$  and  $b \in [12, 19.5]$
  - C.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-4.27, 0.82]$  and  $b \in [13.5, 15]$
  - D.  $(a, b]$ , where  $a \in [-4.5, -0.75]$  and  $b \in [9, 15]$
  - E. None of the above.
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9. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

No more than 10 units from the number 6.

- A.  $[-4, 16]$
  - B.  $(-\infty, -4] \cup [16, \infty)$
  - C.  $(-\infty, -4) \cup (16, \infty)$
  - D.  $(-4, 16)$
  - E. None of the above
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10. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{-5}{2} - \frac{6}{7}x > \frac{6}{3}x + \frac{8}{9}$$

- A.  $(a, \infty)$ , where  $a \in [-2.02, -1.12]$
  - B.  $(a, \infty)$ , where  $a \in [-0.15, 2.1]$
  - C.  $(-\infty, a)$ , where  $a \in [0.45, 3.52]$
  - D.  $(-\infty, a)$ , where  $a \in [-1.5, -0.15]$
  - E. None of the above.
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11. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$4 + 8x > 11x \text{ or } 5 + 3x < 5x$$

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-2.25, 3.75]$  and  $b \in [0, 5.25]$
  - B.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-7.5, -2.25]$  and  $b \in [-6.75, 0.75]$
  - C.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-0.75, 3.75]$  and  $b \in [2.25, 3.75]$
  - D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-4.5, -1.5]$  and  $b \in [-5.25, 2.25]$
  - E.  $(-\infty, \infty)$
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12. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{-6}{9} - \frac{7}{7}x \leq \frac{-5}{2}x + \frac{8}{8}$$

- A.  $(-\infty, a]$ , where  $a \in [0.6, 1.65]$
  - B.  $(-\infty, a]$ , where  $a \in [-2.48, -0.67]$
  - C.  $[a, \infty)$ , where  $a \in [0, 2.25]$
  - D.  $[a, \infty)$ , where  $a \in [-2.25, 0]$
  - E. None of the above.
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13. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

No more than 2 units from the number 3.

- A.  $[1, 5]$
  - B.  $(-\infty, 1] \cup [5, \infty)$
  - C.  $(1, 5)$
  - D.  $(-\infty, 1) \cup (5, \infty)$
  - E. None of the above
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14. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-5 - 6x \leq \frac{-20x - 9}{4} < 8 - 6x$$

- A.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [1.5, 4.5]$  and  $b \in [-12, -9]$
- B.  $[a, b]$ , where  $a \in [1.5, 3.75]$  and  $b \in [-12, -9]$
- C.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [1.5, 6]$  and  $b \in [-11.25, -6]$
- D.  $(a, b]$ , where  $a \in [2.25, 7.5]$  and  $b \in [-12.75, -6.75]$

E. None of the above.

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15. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-8 + 4x > 6x \text{ or } -3 + 3x < 4x$$

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [2.25, 7.5]$  and  $b \in [3.75, 4.5]$
  - B.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-6, -1.5]$  and  $b \in [-3.75, -2.25]$
  - C.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-10.5, -3]$  and  $b \in [-6, -2.25]$
  - D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-1.5, 3.75]$  and  $b \in [1.5, 6]$
  - E.  $(-\infty, \infty)$
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16. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-10x - 6 \leq -9x + 5$$

- A.  $(-\infty, a]$ , where  $a \in [-13, -8]$
  - B.  $[a, \infty)$ , where  $a \in [-11, -4]$
  - C.  $[a, \infty)$ , where  $a \in [10, 14]$
  - D.  $(-\infty, a]$ , where  $a \in [9, 12]$
  - E. None of the above.
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17. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-6x - 4 \leq 3x + 10$$

- A.  $[a, \infty)$ , where  $a \in [0.56, 6.56]$
- B.  $(-\infty, a]$ , where  $a \in [-4.56, 0.44]$
- C.  $[a, \infty)$ , where  $a \in [-1.56, -0.56]$

D.  $(-\infty, a]$ , where  $a \in [-0.44, 8.56]$

E. None of the above.

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18. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-7 - 9x \leq \frac{-15x + 9}{3} < 7 - 6x$$

A.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [2.25, 6]$  and  $b \in [-6, -2.25]$

B.  $[a, b)$ , where  $a \in [-1.5, 8.25]$  and  $b \in [-4.5, -1.5]$

C.  $(a, b]$ , where  $a \in [0.75, 5.25]$  and  $b \in [-7.5, -2.25]$

D.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-2.25, 3]$  and  $b \in [-5.25, -3]$

E. None of the above.

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19. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

Less than 4 units from the number  $-10$ .

A.  $(-\infty, -14] \cup [-6, \infty)$

B.  $(-\infty, -14) \cup (-6, \infty)$

C.  $[-14, -6]$

D.  $(-14, -6)$

E. None of the above

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20. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{-9}{2} - \frac{5}{8}x \geq \frac{6}{4}x + \frac{10}{6}$$

A.  $(-\infty, a]$ , where  $a \in [-6.75, -2.25]$

- B.  $(-\infty, a]$ , where  $a \in [2.25, 6.75]$
  - C.  $[a, \infty)$ , where  $a \in [-6, -0.75]$
  - D.  $[a, \infty)$ , where  $a \in [-0.75, 6.75]$
  - E. None of the above.
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21. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$7 + 7x > 9x \text{ or } 6 + 5x < 6x$$

- A.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-9, -2.25]$  and  $b \in [-7.5, -1.5]$
  - B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [0, 7.5]$  and  $b \in [5.25, 9]$
  - C.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-6.75, -4.5]$  and  $b \in [-4.5, 0]$
  - D.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-0.75, 7.5]$  and  $b \in [4.5, 7.5]$
  - E.  $(-\infty, \infty)$
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22. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{-6}{8} + \frac{5}{3}x \leq \frac{7}{4}x + \frac{10}{6}$$

- A.  $(-\infty, a]$ , where  $a \in [-30.75, -27.75]$
  - B.  $(-\infty, a]$ , where  $a \in [25.5, 34.5]$
  - C.  $[a, \infty)$ , where  $a \in [-31.5, -23.25]$
  - D.  $[a, \infty)$ , where  $a \in [24.75, 30.75]$
  - E. None of the above.
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23. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

No less than 5 units from the number  $-8$ .



- A.  $(-\infty, -13] \cup [-3, \infty)$
  - B.  $[-13, -3]$
  - C.  $(-\infty, -13) \cup (-3, \infty)$
  - D.  $(-13, -3)$
  - E. None of the above
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24. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-5 + 4x \leq \frac{36x - 7}{8} < 7 + 3x$$

- A.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [3.75, 9.75]$  and  $b \in [-8.25, -1.5]$
  - B.  $[a, b)$ , where  $a \in [3.75, 12]$  and  $b \in [-9.75, 0]$
  - C.  $(a, b]$ , where  $a \in [2.25, 12]$  and  $b \in [-6.75, -2.25]$
  - D.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [6, 10.5]$  and  $b \in [-8.25, -2.25]$
  - E. None of the above.
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25. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-8 + 9x > 10x \text{ or } 9 + 4x < 6x$$

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-9.75, -5.25]$  and  $b \in [2.25, 7.5]$
  - B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-13.5, -6]$  and  $b \in [1.5, 5.25]$
  - C.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-6, -3]$  and  $b \in [6, 12.75]$
  - D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-7.5, 0.75]$  and  $b \in [6, 13.5]$
  - E.  $(-\infty, \infty)$
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26. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-9x - 8 \leq 7x + 3$$

- A.  $[a, \infty)$ , where  $a \in [-1.69, 0.31]$
  - B.  $[a, \infty)$ , where  $a \in [-0.31, 4.69]$
  - C.  $(-\infty, a]$ , where  $a \in [0.3, 3.6]$
  - D.  $(-\infty, a]$ , where  $a \in [-2.1, 0.5]$
  - E. None of the above.
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27. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-9x + 5 > 9x - 9$$

- A.  $(-\infty, a)$ , where  $a \in [-0.08, 1.47]$
  - B.  $(a, \infty)$ , where  $a \in [-1.8, 0.5]$
  - C.  $(-\infty, a)$ , where  $a \in [-2, -0.04]$
  - D.  $(a, \infty)$ , where  $a \in [-0.4, 2.9]$
  - E. None of the above.
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28. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-3 - 3x < \frac{-6x + 8}{3} \leq 7 - 5x$$

- A.  $(a, b]$ , where  $a \in [3.75, 8.25]$  and  $b \in [-3.45, 0]$
- B.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [3.75, 6.75]$  and  $b \in [-3.75, -0.75]$
- C.  $[a, b)$ , where  $a \in [3.75, 7.5]$  and  $b \in [-6, 0]$
- D.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [3, 7.5]$  and  $b \in [-1.95, -0.75]$

E. None of the above.

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29. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

No more than 7 units from the number  $-9$ .

- A.  $(-\infty, -16] \cup [-2, \infty)$
  - B.  $(-16, -2)$
  - C.  $[-16, -2]$
  - D.  $(-\infty, -16) \cup (-2, \infty)$
  - E. None of the above
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30. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{-5}{2} + \frac{3}{6}x < \frac{10}{8}x - \frac{6}{7}$$

- A.  $(-\infty, a)$ , where  $a \in [-0.75, 3.75]$
  - B.  $(-\infty, a)$ , where  $a \in [-5.25, 1.5]$
  - C.  $(a, \infty)$ , where  $a \in [0, 3]$
  - D.  $(a, \infty)$ , where  $a \in [-4.5, -1.5]$
  - E. None of the above.
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